Gross Hematuria in a Young Iraqi Man

(See page 1144 for the Photo Quiz.)

Figure 1. Microscopic image of urinary sediment showing an ovum characteristic of *Schistosoma haematobium* (original magnification, ×400). Note the prominent terminal spine (arrow). In contrast, *S. mansoni* ova have a lateral spine.

Diagnosis: infection due to *Schistosoma haematobium*.

Schistosomiasis is a parasitic infection caused by several species of trematodes. *Schistosoma mansoni*, *S. japonicum*, *S. mekongi*, and *S. intercalatum* produce intestinal and liver disease as a result of the location of adult worms in mesenteric venules. *Schistosoma haematobium* adult worms are localized in venules of the lower genitourinary tract. The life cycle of *S. haematobium* is initiated when eggs (shed in the urine of infected humans) hatch in fresh water as miracidia; the miracidia invade *Bulimus* species snails, which serve as intermediate hosts. After a few weeks, fork-tailed cercariae are produced. These infective forms invade the skin, enter the circulation, migrate through the lungs and liver, and enter the urinary bladder venous plexus, where they mature into adults. The adults mate in the venous system, and eggs are shed in the urine (Figure 1). Chronic *S. haematobium* infection results in inflammation and ulceration of the bladder and is characterized by granuloma formation, fibrosis of the bladder and distal ureters with eventual development of hydroureter, hydronephrosis, and renal failure. This inflammatory response is attributable to the presence of eggs in the tissues and the host immune response directed against egg antigens [1, 2].

Human disease due to *S. haematobium* infection remains endemic in the Middle East, and the clinical features of schistosomiasis were originally described nearly 4000 years ago in Egypt in the Kahun papyrus. A causal relationship between schistosomiasis and a parasite was first proposed in the Ebbers papyrus >3500 years ago [3]. Endemic foci of schistosomiasis exist in Iraq and are often associated with the rich rice-growing regions in southern Iraq between Baghdad and Basra, where the large areas of relatively stagnant water favor survival and infectivity of the organism [4]. Al Diwaniyah, located in Al
Qadisiyah Province, Iraq, is especially known for rice production and is irrigated by water from canals drawing from both the Euphrates and the Tigris rivers.

Our patient was treated with praziquantel and made an uneventful recovery.

Acknowledgments

Potential conflicts of interest. All authors: no conflicts.

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Clinical Infectious Diseases 2010;50:1198–1199 © 2010 by the Infectious Diseases Society of America. All rights reserved. 1058-4838/2010/5008-0017$15.00 DOI: 10.1086/651270